

Remarks

Claims 1-20 are now pending in this application. Claims 1-20 are rejected. Claim 20 has been canceled without prejudice, waiver, or disclaimer.

In accordance with 37 C.F.R. 1.136(a), a one-month extension of time is submitted herewith to extend the due date of the response to the Office Action dated July 9, 2003 for the above-identified patent application from October 9, 2003, through and including November 10, 2003. In accordance with 37 C.F.R. 1.17(a)(1), authorization to charge a deposit account in the amount of \$110.00 to cover this extension of time request also is submitted herewith. In addition, an authorization to charge the deposit account for the newly added claims has been submitted herewith.

The objection of Claims 1-20 because of informalities is respectfully traversed. Applicants have amended the claims to correct inconsistencies in plural and singular usage. Accordingly, Applicants respectfully request that the objection of Claims 1-20 because of informalities be withdrawn.

The rejection of Claim 19 under 35 U.S.C. § 102(b) as being anticipated by Hayford et al. (hereinafter “Hayford”) is respectfully traversed.

Hayford describes a nondestructive pulse-echo method that yields a quantitative estimate for developing an “accept or reject” criterion in a quality assurance program. Page 439, first paragraph. Hayford also describes that those specimens with higher values of attenuation generally fail at the lower values of failure loads. Page 441. Hayford suggests that it “might also be possible to develop the technique for monitoring the growth of damage in composites subjected to various load-time histories to a point that would allow prediction of the residual strength of the composite.” Page 431, “Conclusions and Significance”, first paragraph.

Claim 19 recites an ultrasound inspection device including “means for non-destructively testing a first aircraft engine part; and means for predicting a residual strength

of the first aircraft engine part using a result from a non-destructive test of the first aircraft engine part with a plurality of destructive and non-destructive tests on second aircraft engine parts substantially similar to the first part".

Hayford does not describe or suggest an ultrasound inspection device including means for non-destructively testing a first aircraft engine part, and means for predicting a residual strength of the first aircraft engine part using a result from a non-destructive test of the first aircraft engine part with a plurality of destructive and non-destructive tests on second aircraft engine parts substantially similar to the first part. Rather, Hayford describes a nondestructive pulse-echo method that yields a quantitative estimate for developing an "accept or reject" criterion in a quality assurance program. For the reasons set forth above, Claim 19 is submitted to be patentable over Hayford.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claim 19 be withdrawn.

The rejection of Claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Hayford is respectfully traversed. Claim 20 has been canceled. For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claim 20 be withdrawn.

The rejection of Claims 1-18 under 35 U.S.C. § 103(a) as being unpatentable over Hayford in view of Ansberg (SU 1322138 A) is respectfully traversed.

Hayford is described above. Ansberg describes that a test section of a rail is scanned and a *coefficient of variation* of the amplitude of the detected vibrations is determined on the control section using an electronic calculator. Ansberg also describes that the strength limit of a corroded test rail is then calculated using the obtained *coefficient of variation of the amplitude* of the detected vibrations and a correlation dependency.

Claim 1 recites a method of ultrasound inspection including "providing a composite first aircraft engine part; introducing ultrasound to the first aircraft engine part; receiving at

least one reflection of the ultrasound introduced to the first aircraft engine part; and predicting a residual strength of the first aircraft engine part using an amplitude of the received reflection".

Neither Hayford nor Ansberg describe or suggest a method including providing a composite first aircraft engine part, introducing ultrasound to the first aircraft engine part, receiving at least one reflection of the ultrasound introduced to the first aircraft engine part, and predicting a residual strength of the first aircraft engine part using an amplitude of the received reflection. Moreover, neither Hayford nor Ansberg describe or suggest a method including predicting a residual strength of the first aircraft engine part using an amplitude of the received reflection. Rather, as stated in the office action dated July 9, 2003 Hayford does not describe "using an amplitude of the received reflections to predict residual strength of the composite" (page 5), and Ansberg describe an obtained *coefficient of variation* of the amplitude of the reflected vibrations. Additionally, both Hayford and Ansberg are silent with respect to aircraft engine parts. For the reasons set forth above, Claim 1 is submitted to be patentable over Hayford in view of Ansberg.

When the recitations of Claims 2-9 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2-9 likewise are patentable over Hayford in view of Ansberg.

Claim 10 recites a ultrasound inspection system including "a pulse echo transducer; and a processor operationally coupled to said transducer, said processor configured to predict a residual strength of a first aircraft engine part using an amplitude of a received ultrasound reflection".

Neither Hayford nor Ansberg describe or suggest a ultrasound inspection system including a pulse echo transducer, and a processor operationally coupled to the transducer, wherein the processor is configured to predict a residual strength of a first aircraft engine part using an amplitude of a received ultrasound reflection. Moreover, neither Hayford nor Ansberg describe or suggest a processor configured to predict a residual strength of a first

aircraft engine part using an amplitude of a received ultrasound reflection. Rather, as stated in the office action dated July 9, 2003 Hayford does not describe “using an amplitude of the received reflections to predict residual strength of the composite” (page 5), and Ansberg describe an obtained *coefficient of variation* of the amplitude of the reflected vibrations. Additionally, both Hayford and Ansberg are silent with respect to aircraft engine parts. For the reasons set forth above, Claim 10 is submitted to be patentable over Hayford in view of Ansberg.

Claims 11-18 depend from independent Claim 10. When the recitations of Claims 11-18 are considered in combination with the recitations of Claim 10, Applicants submit that dependent Claims 11-18 likewise are patentable over Hayford in view of Ansberg.

In view of the foregoing remarks, this application is believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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Annotated Marked-up Drawings

Applicant: Kevin Paul Devaney et al. Atty. Dkt. No. 13DV-1362
Title: METHOD, SYSTEM, AND MEANS FOR ULTRASOUND INSPECTION
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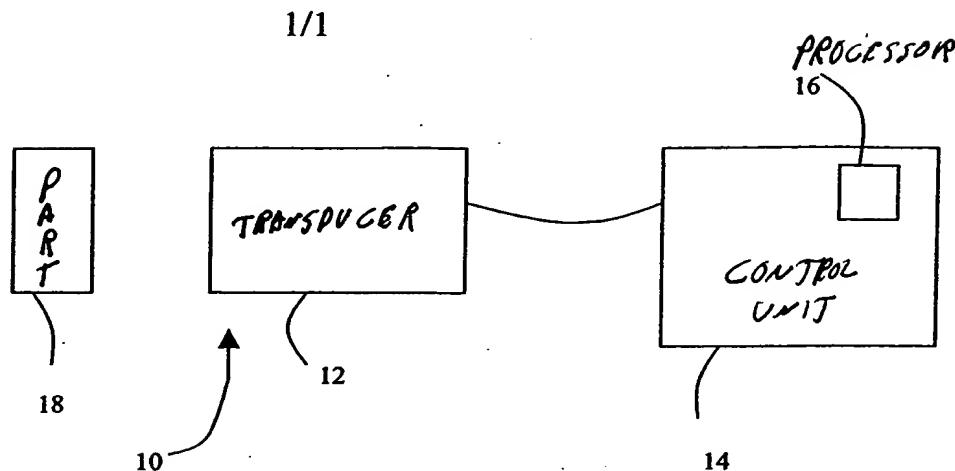


Figure 1

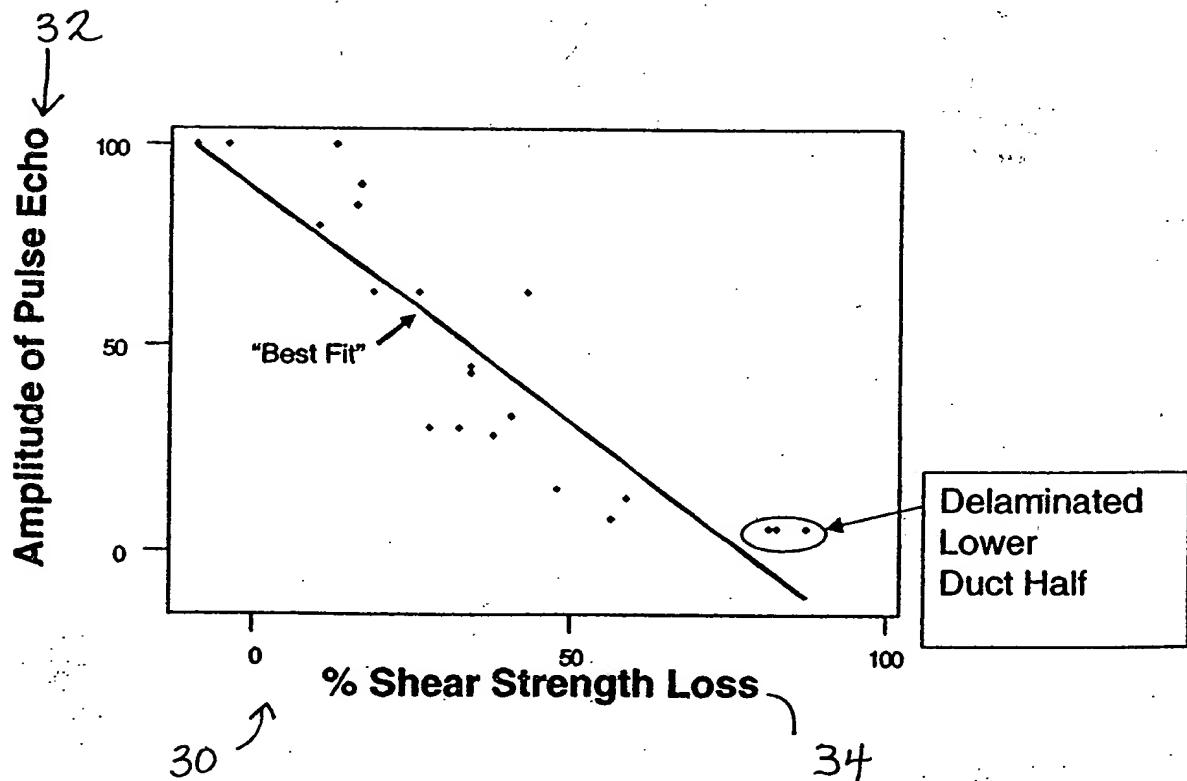


Figure 2